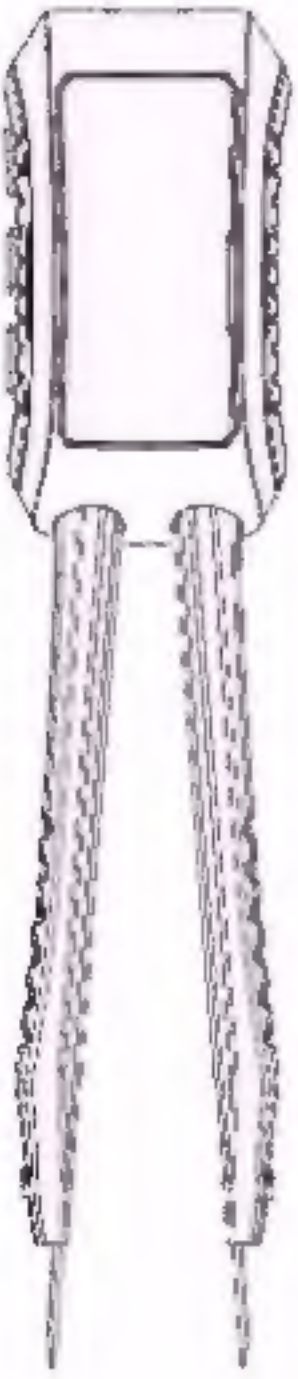
# User Manual



Please read this manual carefully before use and keep it for future reference.

## 1. Overview

This product is a mini digital LCR tweezers Bridge Tester; powered by lithium polymer battery for extended operation and standby time. It features an OLED display for clear interface. It intelligently identifies and accurately measures resistance, capacitance, and inductance with a wide measurement range and high precision. The compact and elegant design allows for easy portability. The tweezer's flexible measuring arms with detachable gold-plated tips ensure flexible and reliable operation. It is suitable for various SMD or other LCR parameter measurements.

The product offers user calibration learning mode, allowing users to calibrate based on standard resistors. Factory calibration data can be restored by resetting to factory settings if needed.

## 2. Safety Precautions

To prevent electric shock, fire, or personal injury, please read the safety precautions before use.

(1) Do not apply input voltage during measurement. Do not measure "live circuits." Disconnect power before online measurement and ensure all capacitors in the circuit are discharged.

(2) Discharge capacitors before measuring capacitance.

(3) Avoid prolonged use or storage in high temperature, high dust, or direct sunlight environments.

(4) Do not use this product in explosive gas, vapor, or humid environments.

## 3. Specifications

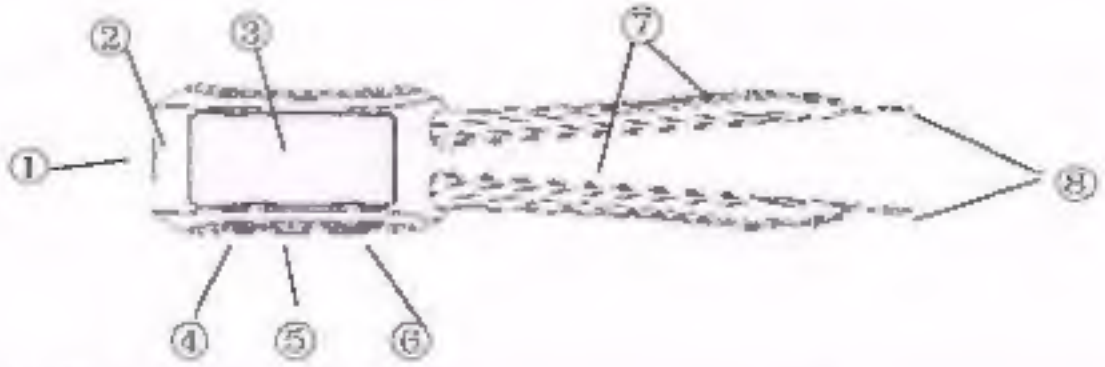
| **Parameters Description** | | | |
|---|---|---|---|
| Main parameters | | Secondary parameters | |
| L | Inductance | RS | Equivalent resistance |
| C | Capacitance | D | loss tangent |
| R | Resistance | Q | quality factor |

| Technical specifications | | | | | |
|---|---|---|---|---|---|
| **Function** | **Range** | **Accuracy at 100Hz** | **Accuracy at 1KHz** | **Accuracy at 10KHz** | **Measurement Range** |
| Resistance | 1MΩ~10MΩ | 5%±5 | 5%±5 | --- | Automatic Mode: 10mΩ~10MΩ Resistance Mode: 10mΩ~10MΩ |
| | 1KΩ~1MΩ | 1%±5 | 0.5%±5 | 1%±5 | |
| | 1Ω~1KΩ | 1%±5 | 0.5%±5 | 0.5%±5 | |
| | 10mΩ~1Ω | 3%±5 | 3%±5 | 3%±5 | |
| Capacitance | 1mF~20mF | 5%±5 | 5%±5 | --- | Automatic Mode: 50pF~5mF Capacitance Mode: 1pF~20mF |
| | 1uF~1mF | 2%±5 | 2%±5 | 2%±5 | |
| | 1nF~1uF | 2%±5 | 0.5%±5 | 0.5%±5 | |
| | 1pF~1nF | --- | 5%±5 | 5%±5 | |
| Inductance | 1H~60H | 5%±5 | 5%±5 | --- | Automatic Mode: 5uH~60H Inductance Mode: 1uH~60H |
| | 1mH~1H | 2%±5 | 2%±5 | 2%±5 | |
| | 10uH~1mH | 2%±5 | 0.5%±5 | 0.5%±5 | |
| | 1uH~10uH | --- | 5%±5 | 5%±5 | |
| Parameters | L、C、R、D、Q、Rs | | | | |
| Modes | Automatic mode, resistance mode, capacitance mode, inductance mode, diode mode, continuity mode | | | | |
| Frequencies | 100Hz、1KHz、10KHz | | | | |
| Voltages | 0.3V、0.6V | | | | |

| General Technical Specifications | | |
|---|---|---|
| Display | OLED | |
| Range | Automatic | |
| Testing Rate | 1 time/second | |
| Data Hold | √ | |
| Language Selection | Chinese, English | |
| Screen Orientation | Left, Right | |
| Volume Setting | 0% ~100% | |
| Backlight Brightness | 10% ~ 100% | |
| Auto Power Off | Off, 5 Min~120 Min | |
| Calibration Setting | 0Ω~10MΩ、OPEN | |
| Restore to Factory Default Settings | √ | |
| Firmware Upgrade | √ | |
| Low Battery Indicator | √ | |
| **Mechanical Technical Specifications** | | |
| Dimensions | 146*30*18mm | |
| Weight | 37g | |
| Battery Type | Lithium polymer rechargeable battery 3.7V 400mAh | |
| Material | ABS | |
| Warranty Period | One year | |
| **Environmental** | | |
| Operating Environment | Temperature | 0~40℃ |
| | Humidity | <75% |
| Storage Environment | Temperature | -20~60℃ |
| | Humidity | <80% |

## IV. Usage Instructions

### (1) Operation Panel Instructions




| Label Number | Name | Function |
|---|---|---|
| 1 | TYPE-C Interface | Used to connect the data cable for battery charging and computer communication. |
| 2 | Charging Indicator Light | This light is solid red while charging. When it turns blue, it indicates that the battery is fully charged. |
| 3 | OLED | Displays all interfaces and values. |
| 4 | Power Button   | 1. Short press to turn on, long press for 2 seconds to turn off.<br>2.In the measurement interface, short press to switch between AUTO, L, C, R, Diode, and Continuity measurement modes.<br>3.In the settings interface, short press to confirm functions or exit. |
| 5 | Right Arrow Key   | 1.In the measurement interface, short press to switch frequencies.<br>2.Long press to enter or exit the settings interface.<br>3.In the settings interface, short press to move down the menu and adjust settings parameters. |
| 6 | Left Arrow Key   | 1.In the measurement interface, short press to hold the current value.<br>2.Long press to switch measurement voltage.<br>3.In the settings interface, short press to move up the menu and adjust settings parameters. |
| 7 | Measurement Arm | Hold the measurement arm with your fingers to operate and measure. |
| 8 | Tweezer Tips | Contact both ends of the component being measured with the left and right tweezer tips for measurement. |

(2) Setting Operation Instructions

1. Long press the right arrow key to enter the settings interface. Short press the left or right arrow key to select the menu to be adjusted. After selecting the menu, press the power key to confirm. The selected menu will turn yellow. Then, press the left or right arrow key to adjust the parameters. After adjusting, press the power key to confirm and exit.

2. To exit the settings interface, long press the right arrow key or power off the device.

(3) Calibration Instructions

When calibration is needed, follow the instructions below. Calibration includes 0Ω, 1Ω, 10Ω, 100Ω, 1KΩ, 10KΩ, 100KΩ, 1MΩ, 10MΩ, OPEN, and individual range calibration.

1. Enter the settings interface, select the calibration settings menu, and short press the power key to confirm. The calibration settings menu will turn yellow, and the screen will prompt "Waiting for calibration."

2. Short press the right arrow key to select the range to be calibrated. The corresponding range value will appear in the middle column of the right side of the screen.

3. Fully contact both ends of the standard resistor with the tweezer tips, then press the left arrow key. The screen will prompt "Calibrating."

4. Wait patiently for 20 seconds. When calibration is complete, the buzzer will beep once, and the screen will display "Calibration successful." If the calibration value is incorrect, the buzzer will beep twice, and the screen will display "Calibration failed."

* Note:

a. Use chip carbon film resistors for calibration, not wire-wound resistors.

b. For 0Ω calibration, short-circuit the tweezer tips completely together for calibration.

c. For OPEN calibration, do not connect any resistor, keeping the tweezer tips in an open circuit state.

d. To return to factory calibration data, perform a factory reset.

(4) Measuring Resistance

1. Use the AUTO mode or manually switch to the R mode.

2. Contact both ends of the resistor to be tested with the tweezer tips.

3. Read the measurement value displayed on the screen.

* Note:

a. Ensure full contact with the surface when measuring low resistance. Surface oxidation can affect measurement accuracy.

b. If the measurement value exceeds the range, the screen will display "OL."

(5) Measuring Capacitance

1. Use the AUTO mode or manually switch to the C mode.

2. Contact both ends of the capacitor to be tested with the tweezer tips.

3. Read the measurement value displayed on the screen.

* Note:

a. Discharge the capacitor before measurement to avoid damaging the instrument.

b. If the measurement value exceeds the range, the screen will display "OL."

(6) Measuring Inductance

1. Use the AUTO mode or manually switch to the L mode.

2. Contact both ends of the inductor to be tested with the tweezer tips.

3. Read the measurement value displayed on the screen.

(7) Measuring Diodes

Manually switch to the diode mode. Contact the positive and negative terminals of the diode with the tweezer tips, and read the diode's polarity and voltage value.

* Note:

a. Determine the diode's polarity according to the diode symbol direction displayed on the screen and the corresponding measurement object with the tweezer tips.

b. The product's diode forward voltage measurement value is for reference comparison only, with a measurement range of Vf 0.1V~0.6V. Values beyond this range will display "OL." For higher measurement requirements, select a more professional diode measuring instrument.

(8) Continuity Measurement

Switch manually to the continuity mode. Touch the tweezer tips to both ends of the point to be tested. A beep will sound when the circuit is closed, and observe the measurement reading on the screen.

*Note: Due to the influence of parallel capacitors during online measurement, continuity measurement results are for reference comparison only and should not be used as a standard for determining continuity.

(9). Low Battery Alert and Battery Charging

When the battery icon in the top right corner of the screen shows one red bar after prolonged use, it needs to be charged promptly. If continued use persists until the battery shutdown voltage is reached, the buzzer will emit intermittent beeps ("beep... beep... beep...") and then shut down automatically.

1. Insert the TYPE-C data cable to connect the tweezer meter to a DC 5V output adapter or USB port on a computer to begin charging.

2. During charging, the charging indicator light will remain solid red. When fully charged, the indicator light will change from red to blue.

*Note: Do not exceed the charging voltage range of DC 5V.

(10). Firmware Upgrade

1. With the device powered off, press and hold the left arrow key, then simultaneously press the power key. The screen will display "USB-Boot" prompt.

2. Connect the TYPE-C data cable to the computer. The computer will recognize the LCR meter as a disk.

3. Drag the prepared upgrade file into the LCR meter disk. The upgrade will proceed automatically.

4. The screen will automatically switch to the measurement interface upon successful upgrade.

(11). Maintenance

Do not attempt to open or repair the product, or alter its circuitry. Clean with a damp cloth and mild detergent; do not use corrosive agents or solvents. Dust or moisture in the test ports may affect reading accuracy.

If the tweezer tips show signs of wear, oxidation, or damage, they can be replaced as follows:

1. Remove the 4 screws from each tweezer tip using a 3.5PM2*3 screwdriver. Ensure the tool matches the screw type.
2. Replace with new tweezer tips.
3. Tighten each screw securely.

## Limited Warranty and Scope of Rights and Responsibilities

**From the date of purchase, this product is covered by a one-year warranty, excluding damages caused by accidents, negligence, misuse, modification, contamination, and abnormal operating environments.**

**This manual is subject to change without prior notice. The contents of this manual are believed to be accurate. If users find any errors or omissions, please contact the manufacturer.**
**The company is not liable for accidents and damages caused by user error.**
**The functions described in this manual are not intended to justify the use of the product for special purposes.**